

VARICHAETADRILUS ANGUSTIPENIS
(BRINKHURST AND COOK, 1966),
NEW COMBINATION FOR *LIMNODRILUS*
ANGUSTIPENIS (OLIGOCHAETA: TUBIFICIDAE)

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Abstract.—*Limnodrilus angustipenis* Brinkhurst & Cook, 1966 is recognized as a member of the genus *Varichaetadrilus* Brinkhurst & Kathman, 1983.

Re-examination of some of the type specimens of *Limnodrilus angustipenis* Brinkhurst & Cook, 1966 reveals that this taxon should be attributed to the genus *Varichaetadrilus* Brinkhurst & Kathman, 1983. Five specimens of the original set collected from Saginaw Bay, Lake Huron in 1956 by the former United States Bureau of Commercial Fisheries Laboratory of Ann Arbor, Michigan, were examined. These were originally donated to the author by J. K. Hiltunen, now of Sugar Island, Michigan.

As the species is usually identified by reference to the shape of the somewhat elongate penis sheaths, very few if any dissections or sections appear to have been prepared from this species. Furthermore, the male ducts have never been fully illustrated. The species was originally described in the third part of a series of publications on the North American aquatic Oligochaeta (Brinkhurst & Cook 1966) in which a few tubificid descriptions were added to a paper largely directed to the Family Lumbriculiidae. No follow-up description has been published.

The male ducts of one of the five specimens at hand are visible as a series of fragments from a dissection.

The union of the vas deferens and atrium and the origin of the prostate gland close to this point is evident on both male ducts. The form of these could well be mistaken for those of *Limnodrilus*. Beyond this point, however, the atrium does not narrow to form

an ejaculatory duct, but remains wide all the way to the base of the penis sheath on each side (Fig. 1). This unique construction of the male ducts is typical of *Varichaetadrilus*. Neither of these male ducts is complete, and so the total length cannot be estimated, but they would appear to be more like those of *V. psammophilus* (Loden, 1977) and *V. minutus* (Brinkhurst, 1965) than those of *V. pacificus* (Brinkhurst, 1981) or

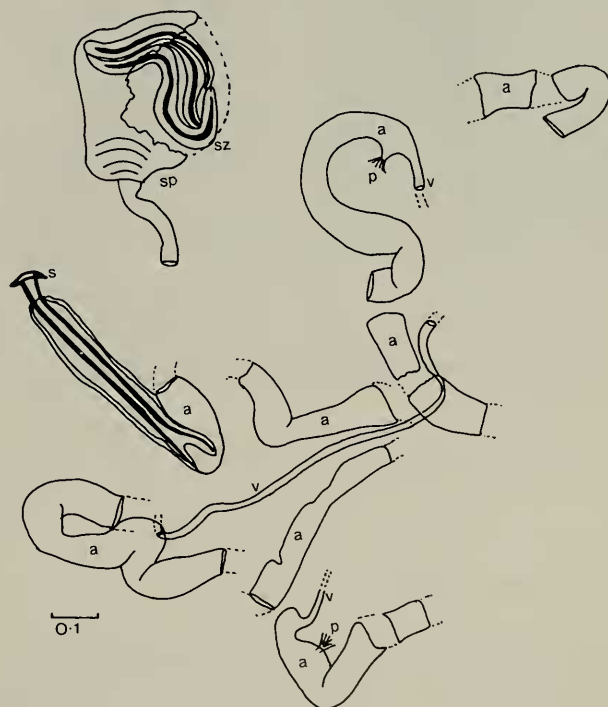


Fig. 1. Fragmented male ducts and spermatheca of *Varichaetadrilus angustipenis* drawn with the aid of a drawing tube from a paratype in the author's collection. Scale in mm. a—atrium, p—prostate stalk, s—penis sheath, sp—spermatheca, sz—spermatheca, v—vas deferens.

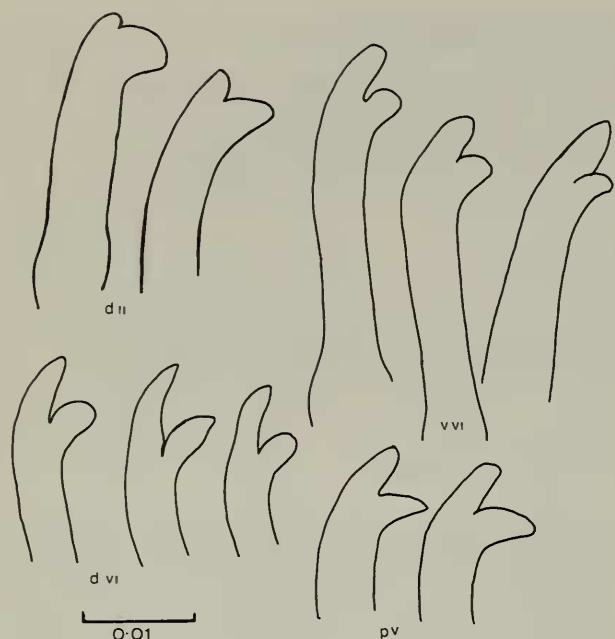


Fig. 2. Chaetae from segments II and VI of the dissected specimen, posterior chaetae from another whole mount. Scale in mm. dII—dorsal chaetae of II, dVI—dorsal chaetae of VI, vVI—ventral chaetae of VI, pv—posterior ventral chaetae.

V. fulleri Brinkhurst & Kathman, 1983, as illustrated by Brinkhurst (1986).

In *V. angustipenis* the penis sac enclosing the long cuticular penis sheath lacks the spiral muscles diagnostic of the genus *Limnodrilus* s.s. (the positions of *Limnodrilus grandisetosus* Nomura, 1932 and *Limnodrilus silvani* Eisen, 1879, might be challenged in regard to this feature). The usual erectile penes of *Varichaetadrilus* appear to be reduced to the short conical structures in the bases of the penis sheaths in this species.

In the original account, no mention was made of penial chaetae, and these do not seem to be modified on the specimens examined here. The penial chaetae are modified in *V. pacificus* and *V. minutus* (= *V. nevadanus*) but not in *V. fulleri* or *V. psammophilus*. *Varichaetadrilus israelis* Brinkhurst, 1971 appears to lack them, too, but this requires confirmation.

The somatic chaetae have reduced upper teeth in anterior bundles (Fig. 2) but the upper teeth are longer than the lower in most bundles, though they may vary within a bundle. There are mostly five chaetae in anterior bundles, but only one or two posteriorly. The upper teeth are especially short in chaetae from II to V.

The form of the penis sheath, and in particular its length, is diagnostic for this species.

Literature Cited

- Brinkhurst, R. O. 1986. Guide to the freshwater aquatic microdrile oligochaetes of North America.—Canadian Special Publication of Fisheries and Aquatic Sciences 84:1–259.
- , & D. G. Cook. 1966. Studies on the North American aquatic Oligochaeta. III: Lumbriculidae and additional notes and records of other families.—Proceedings of the Academy of Natural Sciences of Philadelphia 118:1–33.

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